

This Method of Operation was prepared from Issue 18 of ES-207017.

METHOD OF OPERATION

Panel Machine Switching System - Coin Circuit for Incoming Trunks - To be
Used in Offices Where Multiple - Banks Require Break Down Protection.

DEVELOPMENT

1. PURPOSE OF CIRCUIT

The circuit is used to furnish the coin collect, and coin return bat-
tery for subscribers' pay stations.

2. WORKING LIMITS

This circuit has an external loop resistance of 1259 ohms maximum.

OPERATION

3. PRINCIPAL FUNCTIONS

The principal functions of this circuit are as follows:

- 3.1 Furnishes current for operating the sub-station coin magnet.
- 3.2 Gives a high tone to the line operator when return key is de-
pressed.
- 3.3 Gives a low tone to the line operator when collect key is de-
pressed.
- 3.4 Gives a visible signal when either key is depressed.
- 3.5 Provides a timing arrangement to insure the release and reduction
of the discharge surge of the sub-station coin magnet.
- 3.6 Returns to normal.

4. CONNECTING CIRCUITS

This circuit functions with standard incoming trunks.

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DESCRIPTION OF OPERATION

5. FIG. 1 - OLD JOBS WHERE GROUND POTENTIAL IS UNDER 8 VOLTS.

When the collect key is depressed, the (C) and (CN) relays operate. The (C) relay operated, operates the (C-1) relay which in turn lights the coin lamp and connects the low tone lead thru to the make contact of the (CN) relay. The (CN) relay operated, disconnects the switch-board end of the trunk and connects 110 volts positive current to the tip and ring sides of the line end of the trunk, operating the station coin magnet. It also connects the low tone circuit thru to lead "C" as a signal to the line operator. The (CN) relay is made slow in releasing to hold the 21-E condenser and 19-BF resistance connected to the line a sufficient length of time after the key is released to take up the discharge surge from the coin magnet. When the return key is depressed the circuit functions the same as described for the collect key except that the (R) and (R-1) relays operate in place of the (C) and (C-1) relays, connecting 110 volts negative current to the line end of the trunk and connecting the high tone lead thru, to lead "C".

6. FIG. 2 - NEW JOBS WHERE GROUND POTENTIAL IS UNDER 8 VOLTS.

This circuit functions the same as Fig. 1, except that the (C-1) and (R-1) relays are omitted.

7. FIG. 3 - USED WHERE GROUND POTENTIAL IS OVER 8 VOLTS.

When the collect key is depressed the (C) and (CN) relays operate. The (C) relay operated, (a) operates the (R-1) relay (b) starts the timing cycle of the (A) and (B) relays, lighting the lamp, (c) connects the low tone lead thru to the make contact of the (CN) relay. The (R-1) relay operated, holds the (CN) relay operated. The operation of the (A) relay and the closing of the 149 type interrupter causes the operation of the (B) relay and the locking of the (A) relay. At the next open period of the 149 type interrupter the (A) relay is released, the (B) relay remaining locked up by ground thru the 2-G lamp and the 18-AJ resistance thru the contacts of the (C) relay. At the next closed period of the 149 type interrupter the (CC) relay operates, opening the circuit of the 110 volt coin current, releasing the (C) relay, extinguishing the lamp and releasing the (B) and (CC) relays. When the operator releases the key the (R-1) relay circuit is opened but the (R-1) relay does not release in less than 1/10 of a second during which period the coin magnet is discharging thru the 19-BF resistance and the 21-E condenser to ground unless this action

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has already resulted from the operation of the (CC) relay. This period also insures the release of the coin magnet before 48 volt cord circuit battery may be reconnected to the subscriber's line due to the release of the (CN) relay which cannot release until the slow releasing (R-1) relay has opened its contact. When the return key is depressed the circuit functions as described for the collect key except that the (R) relay operates in place of the (C) relay, connecting 110 volt negative current to the line end of the trunk and connecting high instead of low tone back to the line operator.

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